

Acute Treatment of Cluster Headache with Great Occipital Nerve Blockade

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ABSTRACT

Cluster headache is the most severe and painful form of primary headache occurring in clusters. Acute treatment may be troublesome in patients resistant to available medications. We present a case of 32-year-old male patient having multiple cluster attacks since four weeks. The neurologic examination showed ipsilateral great occipital nerve (GON) sensitivity. GON blockade was performed using triamcinolone resulting

in complete cessation of the attack after the injection. In the presented case GON blockade was used as an effective alternative and safe treatment for cluster headache.

Keywords: Cluster headache, greater occipital nerve, occipital nerve blockade

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INTRODUCTION

Cluster headache (CH) is one of the worst primary headaches which occurs as paroxysmal excruciatingly severe unilateral pain attacks usually grouped in cluster periods. The pain intensity is estimated to be 100 to 1000 times worse than migraine (1, 2). CH patients can sometimes be difficult to treat as not all of them respond to the available treatments. We present a 32-year-old male patient who admitted with complaints of multiple cluster attacks daily unresponsive to oxygen and subcutaneous sumatriptan. Great occipital nerve (GON) blockade was performed using 40 mg triamcinolone. Cluster attack resolved immediately after the injection.

CASE

The case was a 32-year-old male with a medical history of CH since 5 years. He has a previous history of episodic cluster periods starting at the same time each year. Each period lasted between 6 and 9 weeks. He had multiple daily CH attacks since four weeks. The pain was throbbing at the right retro-orbital region spreading to right occipital and cervical region accompanying rhinorrhoea, ptosis, conjunctival congestion and lacrimation. The patient reported worsening multiple attacks lasting between 2 and 3 hours since one week. He overused subcutaneous sumatriptan since 1 month but he reported less response each time. Visual Analogue Scale was between 9 and 10. He frequently visited emergency department but the attacks did not respond to oxygen and sumatriptan. The cranial and cervical magnetic resonance imaging was normal. Previous therapies were methylprednisolone and verapamil. Methylprednisolone was stopped due to gastric problems. He was incompatible about taking daily medication so he stopped verapamil himself. The neurologic examination showed ipsilateral GON and suboccipital tenderness. Right GON blockade was performed using 40 mg triamcinolone during the attack. The attack disappeared completely

after the injection. After nerve blockade, patient experienced complete sensory loss over the posterior scalp lasting for 3 hours. He did not report any side-effect. He was pain free for the next 3 months after the occipital nerve block.

DISCUSSION

A response to local injections of the GON in cluster headache was first reported by Anthony in 1984 (3). In the only placebo controlled trial, a single suboccipital steroid injection completely suppressed attacks in more than 80% of CH patients. Also, they suppose that this treatment is more effective than local anaesthetic injections alone (4).

As in our patient, cephalic pain can be experienced outside the distribution of the ophthalmic division of the trigeminal nerve, at the back of the head, innervated by the GON. This is explained by the convergence of trigeminal and cervical afferents on to neurons in the trigeminocervical complex which includes the caudal part of trigeminal nucleus caudalis and the dorsal horns of C1-C2 segments of spinal cord. The trigeminal nucleus caudalis has a functional brainstem connection with the superior salivatory nucleus triggering autonomic manifestations in cluster headache. Also, there is evidence of anatomical connections between the hypothalamus and the trigeminal nucleus and between the hypothalamus and the superior salivatory nucleus. So the connection exists between the GON and the hypothalamus via the trigemino-hypothalamic pathway (trigeminocervical-hypothalamic connection) (2).

GON blockades are supposed to decrease the sensory input of spinal trigeminal nucleus and modulating central processes as well as interrupting trigeminal autonomic reflex pathway (3). Electrophysiological studies suggest that there is a convergence of dural and cervical afferents in the

GON and then onto the trigeminocervical complex in humans. So GON blockade may also decrease central excitability of dural afferent input (5).

A similar case was also reported which performed using a mixture of lidocaine and bethametasone during the acute cluster attack resolving both attack and cluster period (6).

This is a case of acute CH aborted with GON blockade using triamcinolone. The effect was immediate. Although GON blockade was planned as attack abortive therapy but also worked as a transitional preventive therapy, providing complete cessation the interval headaches. This case shows that GON blockade may be an alternative treatment as an acute and short-term preventative therapy in CH patients especially in case of cervico-occipital spreading and GON tenderness.

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Informed Consent: Informed consent was obtained from the patient included in this study.

Peer-review: Externally peer-reviewed

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